Detailed Action

1. Claims 1, 3-8 and 10-20 are pending.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 5-8, 12-14, 17 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harman et al. (US Patent NO. 7551770), in view of Sato et al. (US Patent NO. 6201517), hereinafter Sato.

As per claim 1, Harman discloses a stereoscopic image display method, wherein when displaying a stereoscopic image by displaying two images (Col. 1, lines 20-35, Harman discloses a stereoscopic image display wherein displaying a plurality of objects or images), an area of attention to be clearly displayed in that an object is performed with gradation processing (Col. 1, lines 20-35, Col. 3, lines 16-21 and Col. 10, lines 16-30; Harman discloses an area of interest selection wherein designating an area for gradation processing using a Gaussian filter wherein performing a blurring processing on a selected area).

However, Harman does not specifically disclose wherein an object to be focused exists is specified to be a front area of a cross-point and a backward area of the cross-point.

Sato discloses wherein an object to be focused exists is specified to be a front area of a cross-point and a backward area of the cross-point (Col. 3, lines 52-67 and Col. 4, lines 11-19; Sato discloses a focused object wherein viewing at least two objects, a focal point determiner 1 calculates visual range and distance data where those objects converge wherein these two objects are known in the art to converge at a crosspoint wherein the focused area is the foreground object and a background area of the converged crosspoint wherein a blurred processing is performed).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Sato to the teachings of Harman to include wherein an object to be focused exists is specified to be a front area of a cross-point

and a backward area of the cross-point as discussed above in order to select or designate a region of interest or attention wherein two perceived objects or images converge at a crosspoint wherein designating a front region and a back region to execute a gradation processing for a blurred region wherein realizing an optimized natural stereoscopic image displayed (Sato, Col. 3, lines 52-67 an Col. 4, lines 11-19).

As per claim 5 (depends on claim 1), Harman does not specifically disclose wherein in which an area of attention is specified by calculation of a distance to an object of each pixel that constitutes an image.

However, Sato discloses wherein in which an area of attention is specified by calculation of a distance to an object of each pixel that constitutes an image (Col. 4, lines 37-50; Sato discloses an area of attention within a visual range calculation wherein distance calculate for each pixel constituting an image to an object).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Sato to the teachings of Harman to include wherein an area of attention is specified by calculation of a distance to an object of each pixel that constitutes an image as discussed above in order to select or designate a region of interest or attention wherein perceived objects or images can be viewed wherein images perceived can be processed and smoothed out on a display thereby realizing an optimized natural stereoscopic image displayed (Sato, Col. 3, lines 11-22 and Col. 4, lines 37-50).

As per claim 6 (depends on claim 1), Harman does not specifically disclose wherein gradation degree of gradation processing is increased with distance from an area of attention.

However, Sato discloses wherein gradation degree of gradation processing is increased with distance from an area of attention (Col. 3, lines 28-67 and Col. 4, lines 37-50; Sato discloses an area of attention within a visual range calculation wherein distance calculation correspond with gradation processing wherein for each pixel constituting an image to an object is processed based on distance data and field of view wherein a blurring processing is performed).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Sato to the teachings of Harman to include wherein gradation degree of gradation processing is increased with distance from an area of attention as discussed above in order to execute a precise image processing based on distance data and field of view data wherein a blurring processing is executed to smooth out image portions thereby realizing an optimized natural stereoscopic image displayed (Sato, Col. 3, lines 30-67 and Col. 4, lines 37-50).

As per claim 7 (depends on claim 1), Harman further discloses wherein in which information of a photographed image is once stored in an image memory and then each treatment is performed based on the information of the stored image (Col. 15, lines 2-12; Harman discloses an image display wherein image processing information

originates from an image photographed via camera's memory and each processing is based on stored data).

As per claim 8, Harman discloses a stereoscopic image display, wherein when displaying a stereoscopic image with using two images the stereoscopic image display (Col. 1, lines 20-35, Harman discloses a stereoscopic image display wherein displaying a plurality of objects or images) is comprised of an area of attention to be clearly displayed where an object to be focused and a gradation processing means which carries out gradation (Col. 1, lines 20-35, Col. 3, lines 16-21 and Col. 10, lines 16-30; Harman discloses an area of interest selection wherein designating an area for gradation processing using a Gaussian filter wherein performing a blurring processing on a selected area).

However, Harman does not specifically disclose an object to be focused exists is a front area of a cross-point and a gradation processing means which carries out gradation on a backward area of the cross-point.

Sato discloses wherein an object to be focused exists is a front area of a cross-point and a gradation processing means which carries out gradation on a backward area of the cross-point (Col. 3, lines 35-67 an Col. 4, lines 11-19; Sato discloses a focused object wherein viewing at least two objects, a focal point determiner 1 calculates visual range and distance data where those objects converge wherein these two objects are known in the art to converge at a crosspoint wherein the focused area is

the foreground object and a background area of the converged crosspoint is processe4 wherein a blurred processing is performed).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Sato to the teachings of Harman to include wherein an object to be focused exists is a front area of a cross-point and a gradation processing means which carries out gradation on a backward area of the cross-point as discussed above in order to select or designate a region of interest or attention wherein two perceived objects or images converging at a crosspoint wherein designating a back region to execute a gradation processing for a blurred region wherein realizing an optimized natural stereoscopic image displayed (Sato, Col. 3, lines 52-67 an Col. 4, lines 11-19).

As per claim 12 (depends on claim 8), Harman does not specifically disclose wherein in which an area focus means can specify an area of attention by calculating a distance to an object of each pixel that constitutes an image specifies an area of attention.

However, Sato discloses wherein in which an area focus means can specify an area of attention by calculating a distance to an object of each pixel that constitutes an image specifies an area of attention (Col. 4, lines 37-50; Sato discloses an area focus means wherein determining a focal point including an area of attention within a visual range calculation wherein distance calculate for each pixel constituting an image to an object).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Sato to the teachings of Harman to include wherein an area of attention is specified by calculation of a distance to an object of each pixel that constitutes an image as discussed above in order to select or designate a region of interest or attention wherein perceived objects or images can be viewed wherein images perceived can be processed and smoothed out on a display thereby realizing an optimized natural stereoscopic image displayed (Sato, Col. 3, lines 11-22 and Col. 4, lines 37-50).

As per claim 13 (depends on claim 8), Harman does not specifically disclose wherein gradation degree of gradation processing is increased with distance from an area of attention.

However, Sato discloses wherein gradation degree of gradation processing is increased with distance from an area of attention (Col. 3, lines 28-67 and Col. 4, lines 37-50; Sato discloses an area of attention within a visual range calculation wherein distance calculation correspond with gradation processing wherein for each pixel constituting an image to an object is processed based on distance data and field of view wherein a blurring processing is performed).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Sato to the teachings of Harman to include wherein gradation degree of gradation processing is increased with distance from an area of attention as discussed above in order to execute a precise image processing

based on distance data and field of view data wherein a blurring processing is executed to smooth out image portions thereby realizing an optimized natural stereoscopic image displayed (Sato, Col. 3, lines 30-67 and Col. 4, lines 37-50).

As per claim 14 (depends on claim 8), Harman discloses wherein in which information of a photographed image is once stored in an image memory and then each treatment is performed based on the information of the stored image (Col. 15, lines 2-12; Harman discloses an image display wherein image processing information originates from an image photographed via camera's memory and each processing is based on stored data).

As per claim 17 (depends on claim 5), Harman does not specifically disclose wherein gradation degree of gradation processing is increased with distance from an area of attention.

However, Sato discloses wherein gradation degree of gradation processing is increased with distance from an area of attention (Col. 3, lines 28-67 and Col. 4, lines 37-50; Sato discloses an area of attention within a visual range calculation wherein distance calculation correspond with gradation processing wherein for each pixel constituting an image to an object is processed based on distance data and field of view wherein a blurring processing is performed).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Sato to the teachings of Harman to include

wherein gradation degree of gradation processing is increased with distance from an area of attention as discussed above in order to execute a precise image processing based on distance data and field of view data wherein a blurring processing is executed to smooth out image portions thereby realizing an optimized natural stereoscopic image displayed (Sato, Col. 3, lines 30-67 and Col. 4, lines 37-50).

As per claim 20 (depends on claim 5), Harman discloses wherein in which information of a photographed image is once stored in an image memory and then each treatment is performed based on the information of the stored image (Col. 15, lines 2-12; Harman discloses an image display wherein image processing information originates from an image photographed via camera's memory and each processing is based on stored data).

5. Claims 3-4, 10-11, 15-16 and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harman in view of Sato, and further in view of Webster et al. (US Patent NO. 5274405), hereinafter Webster.

As per claim 3 (depends on claim 1), Harman discloses wherein an area of attention is defined and any other area is performed with gradation processing (Col. 10, lines 15-45; Harman discloses an area selection perceived by a user in a field of view wherein the designated area of the area of attention is left untouched while the other area if processed with gradation data).

However, Harman in view of Sato does not specifically disclose wherein an area of attention is defined as a peripheral domain of the in-focus area.

Webster discloses wherein an area of attention is defined as a peripheral domain of the in-focus area (Col. 3, lines 11-22 and Col. 4, lines 9-23; Webster discloses displaying stereoscopic image display wherein a focused area or an area of attention within a field of view is further defined as a peripheral area or domain still perceptible to the eye).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Harman in view of Sato to the teachings of Webster to include wherein an area of attention is defined as a peripheral domain of the in-focus area as discussed above in order to select or designate a region of interest or attention wherein perceived objects or images can be viewed wherein images still perceptible beyond a field of view can still be displayed thereby realizing an optimized natural stereoscopic image displayed (Webster, Col. 3, lines 11-22).

As per claim 4 (depends on claim 1), Harman discloses wherein an object to be focused is extracted and any other area is performed with gradation processing (Col. 10, lines 15-45; Harman discloses an area selection perceived by a user in a field of view wherein the designated area of the area of attention is left untouched while the other area if processed with gradation data).

However, Harman in view of Sato does not specifically disclose wherein a peripheral domain thereof is defined as an area of attention.

Webster discloses wherein a peripheral domain thereof is defined as an area of attention (Col. 3, lines 11-22 and Col. 4, lines 9-23; Webster discloses displaying stereoscopic image display wherein a focused area or an area of attention within a field of view further defined as a peripheral area or domain still perceptible to the eye).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Harman in view of Sato to the teachings of Webster to include wherein an area of attention is defined as a peripheral domain as discussed above in order to select or designate a region of interest or attention wherein perceived objects or images can be viewed wherein images still perceptible beyond a field of view can still be displayed thereby realizing an optimized natural stereoscopic image displayed (Webster, Col. 3, lines 11-22).

As per claim 10 (depends on claim 8), Harman discloses wherein an area of attention is defined and any other area is performed with gradation processing (Col. 10, lines 15-45; Harman discloses an area selection perceived by a user in a field of view wherein the designated area of the area of attention is left untouched while the other area if processed with gradation data).

However, Harman in view of Sato does not specifically disclose wherein an area focus means defines a peripheral area of an in-focus area as an area of attention.

Webster discloses wherein an area focus means defines a peripheral area of an in-focus area as an area of attention (Col. 3, lines 11-22 and Col. 4, lines 9-23; Webster discloses displaying stereoscopic image display wherein a focused area or an area of

attention within a field of view is further defined as a peripheral area or domain still perceptible to the eye).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Harman in view of Sato to the teachings of Webster to include wherein an area focus means defines a peripheral area of an in-focus area as an area of attention as discussed above in order to select or designate a region of interest or attention wherein perceived objects or images can be viewed wherein images still perceptible beyond a field of view can still be displayed thereby realizing an optimized natural stereoscopic image displayed (Webster, Col. 3, lines 11-22).

As per claim 11 (depends on claim 8), Harman discloses wherein an object to be focused is extracted and any other area is performed with gradation processing (Col. 10, lines 15-45; Harman discloses an area selection perceived by a user in a field of view wherein the designated area of the area of attention is left untouched while the other area if processed with gradation data).

However, Harman in view of Sato does not specifically disclose wherein an area focus means and defines a peripheral area thereof as an area of attention.

Webster discloses wherein an area focus means and defines a peripheral area thereof as an area of attention (Col. 3, lines 11-22 and Col. 4, lines 9-23; Webster discloses displaying stereoscopic image display wherein a focused area or an area of

attention within a field of view further defined as a peripheral area or domain still perceptible to the eye).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Harman in view of Sato to the teachings of Webster to include wherein an area of attention is defined as a peripheral domain as discussed above in order to select or designate a region of interest or attention wherein perceived objects or images can be viewed wherein images still perceptible beyond a field of view can still be displayed thereby realizing an optimized natural stereoscopic image displayed (Webster, Col. 3, lines 11-22).

As per claim 15 (depends on claim 3), Harman does not specifically disclose wherein gradation degree of gradation processing is increased with distance from an area of attention.

Sato discloses wherein gradation degree of gradation processing is increased with distance from an area of attention (Col. 3, lines 28-67 and Col. 4, lines 37-50; Sato discloses an area of attention within a visual range calculation wherein distance calculation correspond with gradation processing wherein for each pixel constituting an image to an object is processed based on distance data and field of view wherein a blurring processing is performed).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Sato to the teachings of Harman to include wherein gradation degree of gradation processing is increased with distance from an

area of attention as discussed above in order to execute a precise image processing based on distance data and field of view data wherein a blurring processing is executed to smooth out image portions thereby realizing an optimized natural stereoscopic image displayed (Sato, Col. 3, lines 30-67 and Col. 4, lines 37-50).

As per claim 16 (depends on claim 4), Harman does not specifically disclose wherein gradation degree of gradation processing is increased with distance from an area of attention.

Sato discloses wherein gradation degree of gradation processing is increased with distance from an area of attention (Col. 3, lines 28-67 and Col. 4, lines 37-50; Sato discloses an area of attention within a visual range calculation wherein distance calculation correspond with gradation processing wherein for each pixel constituting an image to an object is processed based on distance data and field of view wherein a blurring processing is performed).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Sato to the teachings of Harman to include wherein gradation degree of gradation processing is increased with distance from an area of attention as discussed above in order to execute a precise image processing based on distance data and field of view data wherein a blurring processing is executed to smooth out image portions thereby realizing an optimized natural stereoscopic image displayed (Sato, Col. 3, lines 30-67 and Col. 4, lines 37-50).

As per claim 18 (depends on claim 3), Harman discloses wherein in which information of a photographed image is once stored in an image memory and then each treatment is performed based on the information of the stored image (Col. 15, lines 2-12; Harman discloses an image display wherein image processing information originates from an image photographed via camera's memory and each processing is based on stored data).

As per claim 19 (depends on claim 4), Harman discloses wherein in which information of a photographed image is once stored in an image memory and then each treatment is performed based on the information of the stored image (Col. 15, lines 2-12; Harman discloses an image display wherein image processing information originates from an image photographed via camera's memory and each processing is based on stored data).

Conclusion

6. The prior arts made of record and not relied upon are considered pertinent to applicant's disclosure:

a) Holmes et al. (US Patent No. 4172632) discloses a field of view processing means wherein right eye perceives a shadow area situated slightly to the observer's left while the left eye sees a shadow pattern located slightly to the right. Upon focusing on these

perceived shadow patterns on the screen 33, the two eyes of the observer must converge slightly so that the optical axes of the two eyes cross at a point in front of the screen. The human biovisual system inherently triangulates in such a manner that the object is perceived as being situated at the region where the optical axes or lines of sight of the two eyes converge while the eyes focus on the screen.

b) Waldern et al. (US PGPUB No. 2004/0108971) discloses a texturized screen is provided around the periphery of the image displayed on the display screen. For reasons that are not yet fully understood, it has been found that the use of such a texturized screen can induce an illusion of depth in the displayed image, and this effect can be used to enhance the reality of the image as perceived by the user. The screen can be provided as a separate component which surrounds or partially overlies the periphery of the display screen. Alternatively, a peripheral region of the display screen itself can be reserved to display an image replicating the texturized effect. Moreover, under these circumstances it is possible to alter the display in that peripheral region to vary the texturized11 effect in real time, to allow for changes in the image proper as displayed on the screen and adjust the 11 pseudo-depth" effect in accordance with those changes.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marcellus Augustin whose telephone number is

(571)270-3384. The examiner can normally be reached on Monday- Friday 0900 to 1700.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Benny Tieu can be reached on 571-272-7490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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